

BAYEVA, S.Kh., laborantka

There should be just one supervisor in each crew. Stroi. truboprov. 7 no.5s26 My '62. (MIRA 16s6)

1. Mekhanizirovannaya kolonna SU-5 tresta Yushgasprovodstroy, Rostov-na-Donu.

(No subject headings)

SMIRNOV, M.V.; BAYEVA, T.F.; KOMAROV, V.Ie.

Chronopotentiometric method of measuring the diffusion  
coefficients of tetravalent hafnium in chloride and fluoride-  
chloride melts. Trudy Inst. elektrokhim. UFAN SSSR no.3:  
59-64 '62. (MIRA 16:6)

(Hafnium compounds) (Diffusion)  
(Fused salts) (Potentiometric analysis)

TSYSKOVSKIY, V.K.; BOCHAROV, A.A.; BAYEVA, T.Ye.

Obtaining hydroxy acids from liquid paraffins. Neftekhimiya  
5 no.1:100-107 Ja-F '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

DOBRYAKOV, O.I., inzh.; BAYEVA, V.F., inzh.; BRONSHTEYN, I.I.,  
red.

[Safety manual for riggers] Pamiatka po tekhnike bezopas-  
nosti dlia takelazhnika. Moskva, Energiia, 1964. 20 p.  
(MIRA 18:7)

1. Russia (1923- U.S.S.R.) Tekhnicheskoye upravleniye po  
stroitel'stvu elektrostantsii i setei.

**BAYEVA, V.G.**

**Study of insect pests of pome fruits in Tajikistan. Trudy AN Tadsh.  
SSR 33:69-75 '55. (MLRA 9:8)**

**(Tajikistan--Fruit--Diseases and pests)**

BAYEVA, V.G.

Biology of the Tajik casebeare. in the Gissar Valley. Izv.Otd.  
est.nauk AN Tadsh.SSR no.10:179-184 '55. (MLRA 9:10)

1. Institut zoologii i parazitologii imeni akademika  
Ye.N. Pavlovskogo AN Tadshikskoy SSR.  
(Gissar Valley--Moths)

BAYTAL V.G.

Mites as fruit pests in the Gissar Valley. Dokl. AN Tadsh. SSR  
no.19:43-45 '56. (MIRA 10:4)

1. Institut zoologii i parazitologii im. akad. Ye. N. Pavlovskogo  
AN Tadshikskoy SSR,  
(Gissar Valley--Mites) (Fruit--Diseases and pests)

USSR / General and Specialized Zoology. Insects.  
Pest Insects and Ticks.

P

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78315

Author : Bayeva, V. G.

Inst : Division of Natural Sciences, AS Tadzhik SSR

Title : Biology of the Jumping Plant Louse - Psylla  
vasiljevi Sulc in the Valley of Gissar.

Orig Pub : Izv. Otd. estestv. nauk AN TadzhSSR, 1957, fasc.  
19, 99-106.

Abstract : P. vasiljevi is a serious pest of the pear-trees  
in the Gissar Valley. The hibernating adults start  
to come out from the place of hibernation in the  
end of February or in the first days of March.  
Egg laying starts after a few days, and after  
18 days the first larvae appear. The first  
winged specimens are noted in the middle of

Card 1/3



USSR / General and Specialized Zoology. Insects. P  
Pest Insects and Ticks.

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78315

first appearance was noted in the second decade of October. An insufficiently effective parasite, *Psylledontus insidiosus*, was observed on the jumping plant louse. The effective periods for chemical control are the periods of hatching from the eggs of the larvae of the first generation (the second half of March) and the starting of the hatching of the larvae of the second generation (the third decade of May). A subsequent treatment is necessary in the second decade of June and in the beginning of August (for the late varieties of pear). -- M. N. Kovaleva.

Card 3/3

BAYEVA, V. G.: Master Biol Sci (diss) -- "Insects which are pests on seed fruit crops in the Gissar Valley". Stalinabad, 1958. 16 pp (Acad Sci Tadzhik SSR), 200 copies (KL, No 13, 1959, 102)

BAYEVA, Valentina Gerasimovna; NARZIKULOV, M.N., otv. red.; KOTSABENKO,  
Ye.G., red. izd-va; PROLOV, P.M., tekhn. red.

[Main pests of fruit crops in central Tajikistan] Glavneishie vrediteli plodovykh kul'tur v Tsentral'nom Tadzhikistane. Stalinabad, Izd-vo Akad. nauk Tadzhikskoi SSR, 1960. 59 p. (Akademiia nauk Tadzhikskoi SSR, Dushanbe. Institut zoologii i parazitologii. Nauchno-populiarnaia seria, no.45) (MIRA 14:11)

(Gissar Valley—Insects, Injurious and beneficial)  
(Fruit—Diseases and pests)

MALYAVIN, I.S.; BAYEVA, V.G.

Ichneumon flies (Ichneumonidae, Braconidae and Chalcidoidea),  
the parasites of some butterflies in Tajikistan. Izv. Otd.  
biol. nauk AN Tadzh. SSR no.1:84-89 '63. (MIRA 17:10)

1. Institut zoologii i parazitologii im. akademika Ye.N.  
Pavlovskogo AN Tadzhikskoy SSR.

BAYEVA, V.G.

Insect pests of fruit cultures in southwestern Tajikistan. Trudy  
Inst. zool. i paraz. AN Tadzh. SSR 24:124-156 '63.

(MIRA 17:11)

1. Insitut zoologii i parazitologii imeni adademika Pavlovskogo  
AN Tadzhikskoy SSR.

DOROFYENKO, G.N.; DULENKO, V.I.; BAYEVA, M.V.

Perchloric acid and its compounds as catalysts of organic synthesis. Part 7: Acylation of anisole, phenetole, and thiophene by carboxyl chlorides in the presence of magnesium perchlorate (anhydride). Zhur.ob.khim..32 no.9:3052-3054 S '62.

(MIRA 15:9)

(Magnesium perchlorate)(Anhydride)-----  
(Chemistry, Organic—Synthesis)

KAZUNIN, Filipp Alekseyevich; YAGUPOV, Vladimir Timofeyevich,  
zhurnalist; BAYEV, Yevg., red.; FISENKO, A., tekhn.red.

[Yevpatoriya; concise regional study. Advice to health resort  
visitors and those vacationing without health resort passes]  
Yevpatoriia; kratkii kraevedcheskii ocherk. Sovety kurortni-  
kam i otdykhaiushchim bez putevok. Simferopol', Krymizdat,  
1963. 143 p. (MIRA 16:12)

(Yevpatoriya—Guidebooks)

USSR / Microbiology. Microbes Pathogenic for Man and F  
Animals. Bacteria, Hemophilus Bacteria.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No, 24070

Author : Bayeva, Ye. A.

Inst : Not given

Title : The Study of Antigens Obtained from H.  
pertussis by the Modified Method of White and  
Westphal

Orig Pub : Zh. microbiol., epidemiol. i immunobiol.,  
1957, No 12, 71-74

Abstract : A strain of H. pertussis of the 1st phase  
was grown on casein-carbon agar in the course  
of 48 hours; the collected microbe mass was  
dried with the aid of acetone under room  
temperature. For obtaining an antigenic com-  
plex, the methods of White and Westphal were

Card 1/4



USSR / Microbiology. Microbes Pathogenic for Man and F  
Animals. Bacteria. Hemophilus Bacteria.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No: 24070

studied by means of immunization of mice, with their subsequent infection with virulent whooping-cough culture. Mice immunized with the preparation of White, even in a dose of 0.4 and 0.6 mg (160 and 240 bil. microbe bodies) perished in infection. By the method of Westphal 2 fractions were obtained: an aqueous-layer fraction with pronounced toxic properties and serologically highly active, and a phenol-layer fraction with less expressed toxic properties and weak serological activity. The serological activity was checked by means of the reaction of precipitation with anti-whooping cough immune serum to the 1st phase of the microbe, by the reaction of precipitation

Card 3/4

BAYEVA, Ye. A.: Master Med Sci (diss) -- "A study of the chemical antigens obtained from pertussis microbes". Moscow, 1958. 11 pp (Acad Med Sci USSR, Inst of Epidemiology and Microbiology im Honorary Acad N. F. Gamaleya), 200 copies (KL, No 6, 1959, 142)

BAYEVA, Ye.A.

Studies of antigens obtained from Hemophilus pertussis using Boivin and Topley-Rastrick methods. Zhur.mikrobiol. epid. i immun. 29 no.9:64-69 S'58 (MIRA 11:10)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR:  
(WHOOPING COUGH, immunology  
antigens obtained by Boivin & Topley-Rastrick methods  
(Rus))

ZAKHAROVA, M.S.; BAYEVA, Yu.A.; STEPANOVA, N.A.

"titration of diphtheria and tetanus antitoxins in small quantities of blood. Zhur.mikrobiol.,epid.i immun. 40 no.12:68-72 n '63.

(MIRA 17:12)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.

*Bayevich, H.*

NEVIDITSIN, N.; BUKHSHEYN, I.; BAYEVICH, A.; TOLCHINSKIY, Ya.;  
GLUGAN, A.

Regulate wages in the automotive transport industry. Avt.  
transp. 34 no.10:3-5 0 '56. (MLRA 9:12)

1. Kiyevskiy avtotrest (for Neviditsin) 2. Nachal'nik planovogo  
otdela Dneprodzershinskoy Avtotransportnoy kontory Ministerstva  
stroitel'stva predpriyatiy metallurgicheskoy i khimicheskoy  
promyshlennosti (for Bukhshteyn) 3. Starshiy ekonomist  
avtotransportnoy kontory "Grosneftesavodstroy," (for Bayevich)
4. Dnepropetrovskiy avtotrest Ministerstva stroitel'stva  
predpriyatiy metallurgicheskoy i khimicheskoy promyshlennosti  
(for Tolchinskiy and Glugan).  
(Wages) (Transportation, Automotive)

BAIEVICH, V.M., FANIYEV, R.D.

Progress of the petroleum industry in the Ukraine. Neft. khoz.  
38 no.1:27-30 Ja '60. (MIRA 13:7)

1. Gosplan USSR.

(Ukraine--Petroleum industry)

*BAVEKICH, Y. A.*

ANALYSIS OF THE LIGROINE FRACTION OBTAINED FROM THE THERMAL  
17304). Analysis of the ligroine fraction obtained from the thermal  
showed the following percentage composition: butane 12.9; isopentane 24.0;  
with a vapor pressure of 450 mm 35.2; light solvent ligroins 15.2;

NIKOLAYEVA, V.G.; DUKHNINA, A.Ya.; POPOVA, E.M.; BAYEVICH, Yu.A.;  
SANGIN, I.B.; PERCHENKO, A.A.; LEVINSON, G.I.

Carbamide dewaxing of oil fractions. Trudy VNII NP no.7:253-263  
'58. (MIRA 12:10)  
(Paraffins) (Urea)



BAYEVSKAYA, J.V.

Electroencephalographic changes in tumors of the brain in children.  
Vop.psikh.i nerv. 8:283-296 '62. (MIRA 17:4)

1. Iz kliniki nervnykh bolezney (zav. kafedroy prof. Ye.F.Davidneko  
Leningradskogo pediatricheskogo meditsinskogo instituta (dir. -  
prof. N.T.Shutova).

BAYEVSKAYA, I.V.

Effect of caffeine and camphor on the arterial pressure in the brachial and temporal vessels in a disorder of the cerebral blood circulation. Vop. psikh. i nevr. no.9:171-178 '62. (MIRA 17:1)

1. Kafedra nervnykh bolezney (zav. kafedroy - prof. A.G. Panov) Leningradskogo pediatricheskogo meditsinskogo instituta (dir. - prof. N.T. Shutova).

BAEVSKAIA, E.A.

Pervenstvo nashei strany v voennoi tekhnike; kratkii rekomend. ukazatel' literatury  
(Supremacy of our country in military art and science; brief recommended reading list).  
Moskva, 1954. 32 p.

SO: Monthly List of Russian Accessions, Vol 7, No. 8, Nov. 1954

BAIEVSKY, Boris

BAIEVSKY, Boris. ...Iron and alloy mitals in Siberia. United States Department of commerce, Bureau of foreign and domestic commerce. [Washington, Govt. print. off., 1925]. ii, 28 p. [Trade information series, no. 359].  
"Sources of information": p.28.

DLC: HF1o5.C285

SO: LC, Soviet Geography, Part II, 1951, Unclassified

BAIEVSKY, Boris

BAIEVSKY, Boris. ...Fisheries of Siberia. Washington, Govt. print. off., 1926.  
p. 37-64. (U.S. Bureau of fisheries. Doc. 1006.) (Department of commerce.)  
Bibliography: p. 64. DLC: SH305.B3

DF

SO: LC, Soviet Geography, Part II, 1951, Unclassified

BAYEVSKIY, B.

From a factory of communist labor to a factory of communist society.  
Koks i khim. no.2:46-50 '62. (MIRA 15:3)  
(Zhdanov--Coke industry) (Efficiency, Industrial)

BAYEVSKIY, B.S.

At an enterprise of communist labor. Ogneupory 27  
no.11:504-509 '62. (MIRA 15:11)  
(Ovruch region--Quarries and quarrying)  
(Quartzite)

ZVEZDIN, Z.K., nauchnyy sotrudnik; ROGACHEVSKAYA, L.S., nauchnyy sotrudnik;  
BAYEVSKIY, D.A., redaktor; POLYAKOVA, N., redaktor; MUKHIN, Yu.,  
~~Akademicheskii~~ redaktor

[Political and industrial gains of the working class of the Soviet Union (1928-1929); a collection of documents] Politicheskii i trudovoi pod'em rabocheho klassa SSSR (1928-1929 gg.); [sbornik dokumentov. Pod red. D.A.Baevskogo.] Moskva, Gos. izd-vo polit. lit-ry, 1956. 611 p.  
(MLRA 9:9)

1. Akademiya nauk SSSR. Institut istorii. 2. Tsentral'nyy Gosudarstvennyy arkhiv Otktyabr'skoy revolyutsii i sotsialisticheskogo stroitel'stva (for Zvezdin) 3. Institut istorii Akademii nauk SSSR (for Rogachevskaya)  
(Labor and laboring classes)



*BAYEVSKIY David Anatol'yevich*  
BAYEVSKIY, David Anatol'yevich

[On the history of economic development in the civil war period]  
Ocherki istorii khomiatvennogo stroitel'stva perioda grazhdanskoi  
voiny. Moskva, Izd-vo Akademii nauk SSSR, 1957. 446 p. (MIRA 11:1)

1. Akademiya nauk SSSR, Institut istorii.  
(Russia--Economic policy)

LIPATOV, Nikolay Platonovich; RAYEVSKIY, D.A., doktor istor.nauk,  
otv.red.; KUZOVLEV, A.A., red.isd-va; RYLINA, Yu.V., tekhn.red.

[Ferrous metallurgy in the Urals during the years of the Great  
Patriotic War, 1941-1945; outline history of its construction]  
Chernaia metallurgiya Urals v gody Velikoi Otechestvennoi voyny,  
1941-1945 gg.; ocherki istorii stroitel'stva. Moskva, Izd-vo  
Akad.nauk SSSR, 1960. 281 p.

(Ural Mountain region--Iron industry)

(MIRA 14:2)

FEDIN, K.A.; BAYEVSKIY, D.A., doktor istor.nauk; VOLKOV, H.S., doktor istor.nauk; GENKINA, E.B., doktor istor.nauk; KUCHKIN, A.P., doktor istor.nauk; KOSTOMAROV, G.D., prof.; DADYKIN, R.P., kand. istor.nauk; ROGACHEVSKAYA, L.S., kand.istor.nauk; SHABALIN, B.I., kand.istor.nauk; MAMONTOV, I.S.; PIROGOV, V.K., преподаvatel'

Let's write the history of our plants and factories; a letter to the editors. Sov.profsoiuzy 16 no.7:62-63 Ap '60.

(MIRA 13:4)

1. Sekretar' Soyuz pisateley SSSR (for Fedin). 2. Glavnyy redaktor izd-va "Moskovskiy rabochiy" (for Mamontov).  
(Factories)

BAYEVSKIY, D.A., otv. red.; DADYKIN, R.P., red.; GAPONENKO, L.S., red.;  
MATYUGIN, A.A., red.; MITROFANOVA, A.V., red.; KIND, T.B., red.  
izd-va; TIKHOMIROVA, S.G., tekhn. red.

[Changes in the size and composition of the Soviet working class]  
Izmeneniia v chislennosti i sostave sovetskogo rabochego klassa;  
sbornik statei. Moskva, 1961. 371 p. (MIRA 14:8)

1. Akademiya nauk SSSR. Institut istorii.  
(Labor and laboring classes—Statistics)

L 01805-67 EnI(m)/I DJ

ACC NR: AP6030592 (AN) SOURCE CODE: UR/0413/66/000/016/0074/0074

INVENTOR: Garzanov, G. Ye.; Pelyakina, Ye. I.; Bagryantseva, P. P.;  
Shames, F. Ya.; Ravikovich, A. M.; Boshchevskiy, S. B.; Maloletkov, Ye. K.;  
Selivanchik, Ya. V.; Gusman, M. Ye.; Skvirskiy, P. A.; Aver'yanov, V. A.;  
Uzunkoyan, P. N.; Pisarchik, A. N.; Mikhaylov, Yu. A.; Belogradskiy, A. P.;  
Bayevskiy, F. S.; Fomin, N. I.

ORG: none

TITLE: Method of obtaining a hydraulic lubricant. Class 23, No. 185000.  
 [Announced by the Scientific Research Institute for Organization, Mechanization,  
and Technical Assistance to Construction (Nauchno-issledovatel'skiy institut  
 organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966,  
 74

TOPIC TAGS: lubricant, lubricant additive, antioxidant additive, polymethacrylate,  
 hydraulic lubricant

ABSTRACT: An Author Certificate has been issued for a method of obtaining a  
 hydraulic lubricant by means of additives with an oil base. To expand the operat-  
 Card 1/2 UDC: 621.892.8:621.226

L 01805-67

ACC NR: AP6030592

ing temperature range of oil a mixture of commercial oil and diesel-oil residue are taken as the oil base to which a multifunctional additive is added, such as EFO, an antioxidant agent, such as octadecylamine, and a depressing agent, such as a polymethacrylate. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 25May65/.

Card 2/2 *hkh*

BAJEVSKIY, R.M.

BAJEVSKIY, R.M.

Extension of diagnostic possibilities of electrocardiography.  
Klin. med. 32 no.5:79-81 My '54. (MIRA 7:7)

1. Iz propedevticheskoy terapevticheskoy kliniki (sav. prof.  
I.I.Tsvetkov) Saratovskogo meditsinskogo insituta.  
(ELECTROCARDIOGRAPHY,

\*appar. for extension of diag. possibilities of ECG)

BAYEVSKIY, R.M., starshiy leytenant meditsinskoy sluzhby

Ballistocardiography and possibilities of its use in military  
medicine. Voen.-med. zhur. no.5:29-32 My '56. (MLRA 9:9)  
(BALLISTOCARDIOGRAPHY)



17(1,7)

AUTHOR:

SOV/177-58-3-8/29  
Bayevskiy, R.M., Captain of Medical Service

TITLE:

The Methodology of Ballistocardiography in Mass Research

PERIODICAL:

Voyenno-Meditsinskiy Zhurnal, 1958, Nr 3, pp 37-41  
(USSR)

ABSTRACT:

Early diagnosis of diseases of the heart and vessels is an important medical problem. Among the new methods of research into the heart-vascular system, ballistocardiography should be stressed. This relatively little used method can be successfully applied to evaluate the state of the heart muscle in various illnesses. In military medicine it is of interest for mass research into heart-vessel pathology or for judging the influence of various aspects of military service on the heart. The structure of a ballistocardiogram depends on varied factors: the strength of heart contraction, speed of blood flow, etc. The theoretically ideal ballistocardiogram can only be obtained with a full ratio of each of the varied physiological factors forming

Card 1/3

SOV/177-58-3-8/29

The Methodology of Ballistocardiography in Mass Research

the curve. Two methods of registration (direct or indirect) are used in clinics, but are unsuited to mass research. The article describes a combined method of registration, and gives a drawing of the newly designed ballistocardiograph which makes possible rapid research in any conditions. Three quarters of a page are devoted to a detailed description. This design can assist in the study of the working of the heart on marches, in training and physical training, parachuting etc. Methodology is as follows. An electrocardiograph EKP-4M, sensitivity of which is fixed at 1mv-10mm, is used for registration. 5-8 ballistocardiographic complexes are noted for each study. Soldiers are studied in uniform, with boots on. After every tenth entry, a "control millivolt" is registered. Drawings of 3 ballistocardiograms are shown (young soldiers of the same age and length of service) and 2 more cardiograms show pathological changes. Ballistocardiography was also used as a supplement to electrocardiography. Comparison of the 2 graphs extends the

Card 2/3

SOV/177-58-3-8/29

The Methodology of Ballistocardiography in Mass Research

diagnostic potential of both methods. A drawing shows the circuit diagram of a switch (fully described) permitting ballistocardiograms to be registered during electrocardiography. In mass ballistocardiography the doctor's task is to decide whether there is evidence for a special study of the heart system of the patient. Minimum data should be considered (age, trade, complaint, etc) in evaluating the results. Divergences of the 3rd and 4th degree are considered "pathological". 2nd degree divergences are "variations from the norm" only where pathological changes in individual waves are absent. Both detailed evaluation of ballistocardiograms is possible only by comparing them with data obtained from clinical observation, the results of functional tests and electrocardiographic data. There are 9 graphs and 1 circuit diagram. ✓

Card 3/3

BAYEVSKIY, R.M., kapitan med.sluzhby

Possibility of using a ballistocardiographic method in medical examination in aviation. Voen.-med.shur. no.12:48-51 D '58. (MIRA 12:12)

(AVIATORS,

ballistocardiographic screening (Rus))

(BALLISTOCARDIOGRAPHY,  
of aviators (Rus))

**BAYEVSKIY, R.M. (Sakhalin):**

**Problems in practical ballistocardiography. Klin.med. 36 no.8:93-98**  
**A'58 (MIRA 11:9)**

**(BALLISTOCARDIOGRAPHY,  
practical problems (Rus))**

BAYEVSKIY, R. M. Cand Med Sci -- (diss) "~~Electromagnetic~~ <sup>experience of</sup> ~~portable~~ <sup>use</sup> ballisto-  
cardiograph and ~~an experiment in its application.~~" Mos, 1959. 15 pp (Min of  
Health USSR. Central Inst for the Advanced Training of Physicians), 200 copies  
(KL, 43-59, 127)

-81-

BAYEVSKIY, R.M.

Technics of ballistocardiography. Terap.arkh. 31 no.7:48-53  
J1 '59. (MIRA 12:11)

1. Iz kafedry fakul'tetskoy terapii (nach. - prof.V.A.Beyer)  
Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova  
i kafedry klinicheskoy i eksperimental'noy fiziologii (sav. -  
deystvitel'nyy chlen AMN SSSR prof.V.V.Parin) TSentral'nogo  
instituta usovershenstvovaniya vrachev.  
(BALLISTOCARDIOGRAPHY)

BAYEVSKIY, R.M.; BELYAYEVA, F.N.; SEL'TSER, F.K., kand.meditsinskikh nauk

Method for mass ballistocardiography. Sov. med. 24 no.4:105-109 Ap  
'60. (MIRA 13:8)

1. Iz kafedry klinicheskoy i eksperimental'noy fiziologii (zav. -  
deystvitel'nyy chlen AMN SSSR V.V.Parin) i Sentral'nogo instituta  
usovershenstvovaniya vrachey (sdravpunkta avtoremontnogo zavoda  
Leningradskogo upravleniya avtomobil'noy transporta) (zav. F.N.  
Belyayeva) i Instituta radiatsionnoy gigiyeny (dir. - chlen-  
korrespondent AMN SSSR N.F. Galinin).  
(BALLISTOCARDIOGRAPHY)



PARIN, V.V.; BAYEVSKIY, R.M.

Ballistocardiography as a method of early detection of cardiovascular diseases. Nauch. inform. Otd. nauch. med. inform.  
AMN SSSR no.1:8-10 '61 (MIRA 16:11)

1. Institut normal'noy i patologicheskoy fiziologii (direktor - deystvitel'nyy chlen AMN SSSR prof. V.V.Parin) AMN SSSR, Moskva.

✱

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S/560/61/000/011/008/012  
E027/E635

AUTHORS: Gazenko, O.G., Bayevskiy, R.M.  
TITLE: Physiological methods in space medicine  
SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki  
Zemli. no. 11. Moscow 1961. Rezul'taty nauchnykh  
issledovaniy, provedennykh vo vremya poletov  
vtorogo i tret'yego kosmicheskikh korabley-  
sputnikov, 68 - 77

TEXT: The authors discuss the problems involved in  
carrying out physiological investigations on men and animals  
during space flights. The necessity of recording observations  
and transmitting them to earth has led to the development of the  
new science of biotelemetry. In this field transducers are of  
prime importance in converting physiological information into  
electric currents, and due consideration must be paid to their  
reliability and to the avoidance of unnecessary discomfort when  
they are attached to the experimental subject for prolonged  
periods. The amount of information which can be carried by the  
communications channels must also be considered. Thus, to  
Card (1/5)

Physiological methods in ---

S/560/61/000/011/008/012  
E027/E635

transmit an electrocardiogram with an amplitude of five volts with an accuracy of 0.25 volt twenty different signals can enter the channel, which should be able to transmit not less than 100 signals per second. The electrocardiogram thus contains around 400 items of information per second, and the capacity of the channel should be 500 items per second. Similarly, the electroencephalogram requires a transmission frequency of 200 signals per second and a channel capacity of 800 items per second; for the electromyogram the respective figures are 1000 and 4000, for the pneumogram 10 and 20, and for the thermogram 0.05 and 0.25. The capacity of the channel required can be reduced by coding the information to be transmitted. In space flight physiological methods are applied for three purposes; (1) to exert continuous medical control over the experimental subject; (2) to obtain information on the effect of space conditions on the subject, and (3) to detect conditions dangerous to life and health. Some

Card 2/3

. Physiological methods in ---

S/560/61/000/011/008/012  
E027/635

measurements, such as of respiration and cardiovascular activity. fall into all three categories. The main methods used in space physiology, such as electrocardiography, seismocardiography (a variant of ballistocardiography used in the third Soviet satellite, which can only be used during free flight), phonocardiography, arterial oscillography, recording of the pulse and respiratory movements, electromyography, recording of body movements, thermometry and investigation of the higher nervous activity are briefly reviewed. There are 6 figures and 1 table. f

SUBMITTED: May 3, 1961

Card 3/3

PARIN, V.V., prof.; BAYEVSKIY, R.M., kand.med.nauk

Classification of the recording systems in ballistocardiography.  
Kardiologiya 1 no.2:46-54 Mr-Apr '61. (MIRA 15:1)

1. Deystvitel'nyy ohlen AMN SSSR (for Parin).  
(BALLISTOCARDIOGRAPHY)

BAYEVSKIY, R. M., GAZENKO, O. G.

"Bio-Medical Methods and Techniques under Space Flight Conditions"

report presented at the Intl. Symposium on Basic Environmental  
Problems of Man in Space, Paris, 29 October - 2 November 1962.

(IAF)

BAYEVSKIY, Roman Markovich; ERINA, Ye.V., red.; PARAKHINA, N.L., tekhn.  
red.

[Principles of practical ballistocardiography] Osnovy praktiches-  
skoi ballistokardiografii. Moskva, Medgiz, 1962. 174 p.  
(MIRA 15:12)

(BALLISTOCARDIOGRAPHY)

VOLENKIN, Yu.M.; YAZDOVSKIY, V.I.; GENIN, A.M.; VASIL'YEV, P.V.;  
GYURDZHIAN, A.A.; GUROVSKIY, N.H.; GORBOV, F.D.; SERYAPIN,  
A.D.; BELAY, V.Ye.; DAYEVSKIY, R.M.; ALTUKHOV, G.V.;  
KOPANEV, V.I.; KAS'YAN, I.I.; YEGOROV, A.D.; SIL'VESTROV,  
M.M.; SIMPURA, S.F.; TERENT'YEV, V.G.; KRYLOV, Yu.V.; POMIN,  
A.G.; USHAKOV, A.S.; DEGTYAREV, V.A.; VOLOVICH, V.G.;  
STEPANTSOV, V.I.; KYASHNIKOV, V.I.; YAZDOVSKIY, V.I.; KASHIN,  
P.S., tekhn. red.

[First space flights of man; the scientific results of the  
medicobiological research conducted during the orbital  
flights of the spaceships "Vostok" and "Vostok-2"] Pervye  
kosmicheskie polety cheloveka; nauchny rezul'taty mediko-  
biologicheskikh issledovaniy, provedennykh vo vremya orbi-  
tal'nykh poletov korablei-sputnikov "Vostok" i "Vostok-2."  
Moskva, Izd-vo Akad. nauk SSSR, 1962. 202 p. (MIRA 15:11)  
(SPACE MEDICINE) (SPACE FLIGHT TRAINING)



PARIN, V.V.; BAYEVSKIY, R.M.; GAZENKO, O.G.

Problems of biological telemetry. Probl.kosm.biol. 1:104-117 '62.

(AEROSPACE TELEMETRY) (TELEMETER(PHYSIOLOGICAL APPARATUS)) (MIRA 15:12)

S/865/62/001/000/015/033

E028/E185

AUTHORS: Antipov, V.V., Bayevskiy, R.M., Gazenko, O.G.,  
Genin, A.M., Gyurdzhian, A.A., Zhukov-Verezhnikov, N.N.,  
Zhuravlev, B.A., Karpova, L.I., Parfenov, G.P.,  
Seryapin, A.D., Shopelev, Ye.Ya., Yazdovakiy, V.I.

TITLE: Some results of medical and biological investigations  
in the second and third satellites

SOURCE: Problemy kosmicheskoy biologii. v.1. Ed. by  
N.M.Sisakyan. Moscow, Izd-vo AN SSSR, 1962. 267-284

TEXT: The maintenance of life conditions is discussed with  
special reference to the second Soviet satellite. During the  
flight the proportion of oxygen in the air of the cabin could be  
maintained at 21 to 24%, whereas the relative humidity rose from  
37 to 47%. The temperature ranged from 16 to 19°C. Water and  
food were provided together in a mixture solidified with agar, in  
order to facilitate automatic dispensing in conditions of weight-  
lessness. This was carried out twice daily by command signals  
from Earth. Telemetric recording of the physiological parameters  
of the dogs Belka and Strelka during space flight showed the  
Card 1/2

Some results of medical ...

S/865/62/001/000/015/033  
E028/E185

occurrence of tachycardia as a result of acceleration, noise and vibration; there was also a rise in the respiration rate: a return to normal pre-flight values occurred during the condition of weightlessness. Movements of the animals were observed by television cameras and also by potentiometric sensors mounted in the harness. No abnormalities were observed in the behavior of the animals after return to earth or during the following 3 months. It was concluded from the experiments carried out in the second satellite that dogs could readily be accustomed to space flight conditions. Genetic changes were noted in the progeny of actinomycetes, plant seeds and fruit flies after return from space flight. The third space satellite contained two dogs (Pchelka and Mushka), two guineapigs, two rats, twenty six mice, fruit flies, seeds and other biological materials which were included in order to study the effects of cosmic radiation. The results are not described.

Card 2/2

MOSKALENKO, Yu.Ye.; BAYEVSKIY, R.M.; GAZENKO, O.G.

Methods of studying blood circulation in the brain under the  
conditions of a changed gravitational field. Probl.kosm.biol.  
1:400-404 '62. (MIRA 15:12)  
, (GRAVITY—PHYSIOLOGICAL EFFECT)(BRAIN—BLOOD SUPPLY)

BAYEVSKIY, R.M.

Methods of integral phonocardiography. Probl.kosm.biol. 1:412-  
414 '62. (MIRA 15:12)

(HEART—SOUNDS) (SPACE MEDICINE)

BAYEVSKIY, R.M.; POLYAKOV, V.I.

Recording sphygmograms of dogs. Probl.kosm.biol. 1:415-417 '62.

(SPHYGMOGRAPH) (SPACE MEDICINE) (MIRA 15:12)

BAYEVSKIY, R.M.; KAZAR'YAN, L.A.

Recording seismocardiograms of dogs. Probl.kosm.biol. 1:418-421  
'62. (MIRA 15:12)

(BALLISTOCARDIOGRAPHY)

(SPACE MEDICINE)

BAYEVSKIY, R.M.; OSIPOVA, M.M.

Selection of leads and the analysis of electrocardiograms of dogs.  
Probl.kosm.biol. 1:422-426 '62. (MIRA 15:12)  
(ELECTROCARDIOGRAPHY) (SPACE MEDICINE)



S/865/62/002/000/003/042  
D405/D301

AUTHOR: Bayevskiy, R.H.  
TITLE: Biologic telemetry and space flight  
SOURCE: Problemy kosmicheskoy biologii. v. 2. Ed. by N. Sisa-  
kyan and V. Yazdovskiy. Moscow, Izd-vo AN SSSR, 1962,  
25-39

TEXT: The main problems of space biotelemetry are reviewed. The telemetering programmes used on the Soviet space ships II-VII are analyzed, as well as those used on the space ships Vostok and Vostok-2; in the space ships II-VII the objects of the experiments were animals, whereas the Vostok ships were used for manned space-flight. 9 different physiological methods were employed in the experiments; these methods dealt mainly with the vegetative functions of the organism, in particular the blood-circulation system. A figure shows some radiotelemetric recordings of physiological parameters. Later on the investigations were extended to physiological methods which characterize the state of the central nervous system and the

Card 1/3

Biologic telemetry ...

S/865/62/002/000/003/042  
D405/D301

vestibular apparatus of astronauts. On Vostok, two medical control methods were used: electrocardiography and pneumography; on Vostok-2, kinetocardiography was used in addition to the above two methods. With increasing duration and range of space flights, the problems of biotelemetry become more complex and require the use of information theory. Coding methods of medico-biological information have to be developed from a medical point of view. Codograms can be more conveniently interpreted than the curves which record directly the physiological processes; codograms are also convenient for use in miniature digital computers, which can be installed on space ships. The problem of free movement of the astronaut in his cabin requires a dynamic telemetering system (i.e. a miniature radiotransmitter plus receiver for intra-cabin biotelemetry). The following classification of biotelemetric systems is proposed (the first entry gives the criterion underlying the systems): purpose - research and control systems; time of operation - continuous and periodic; method of transmission of information to ground - direct-transmission systems and systems with storing of information; degree of transformation of primary information - direct-recording systems, coding systems,

Card 2/3

Biologic telemetry ...

S/865/62/002/000/003/042  
D405/D301

and systems with automatic data-analysis; method of connection between object of investigation and cabin equipment - dynamic and static. For medical control it is desirable to use dynamic systems. The degree of transformation of the primary information determines in fact all the other elements of the biotelemetric system. If automatic data-analysis is used, then continuous recording systems and memory devices should be also used. There are 5 figures and 4 tables.

Card 3/3

YAZDOVSKIY, V.I., prof.; BAYEVSKIY, R.M., kand.med.nauk

Medicobiological control in space flight. Vest. AN SSSR 32  
no.9:9-15 S '62. (MIRA 15:9)

(SPACE MEDICINE)

BAYEVSKIY, R. M., *GAZENKO, O. G.*

"Some Problems of Physiology of Blood Circulation Under Conditions of Weightlessness"

report submitted for the 14th Intl. Astronautical Federation (IAF), Congress, Bioastronautics Committee, Paris, France 25 Sep-1 Oct 63

PARIN, Vasil'y Vasil'yevich; BAYEVSKIY, Roman Markovich; KULLANDA,  
K.M., red.; MATVEYEVA, M.M., tekhn. red.

[Cybernetics in medicine and physiology] Kibernetika v  
meditsine i fiziologii. Moskva, Medgiz, 1963. 117 p.  
(MIRA 16:4)

(CYBERNETICS) (MEDICINE) (PHYSIOLOGY)

ACCESSION NR: AT4042642

S/0000/63/000/000/0006/0008

AUTHOR: Akulinichev, I. T.; Bayevskiy, R. M.; Belay, V. Ye. Vasil'yev, P. V.; Gazenko, O. G.; Kakurin, L. I.; Kotovskaya, A. R.; Maksimov, D. G.; Mikhaylovskiy, G. P.; Yazdovskiy, V. I.

TITLE: Results of physiological investigations aboard the "Vostok-3" and "Vostok-4" spaceships

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy\* konferentsii. Moscow, 1963, 6-8

TOPIC TAGS: biomedical monitoring, electrooculogram, pneumogram/Vostok-3, Vostok-4, EEG, EKG

ABSTRACT: A number of physiological indices were monitored during the tandem spaceflights of Nikolayev and Popovich (Vostok-3 and Vostok-4). New procedures used for the first time on these flights and improvements of existing equipment yielded a great deal of physiological information. Weightless-  
Card 1/5

ACCESSION NR: AT4042642

ness had no noticeable effect on the functional state of the CNS in either cosmonaut, as evaluated on the basis of performance of various tasks. EEG's showed a dominance of comparatively high-amplitude rhythms with a frequency of 5 to 7 cps, similar to those observed in athletes after intense physical exertion, during the first hours of weightlessness. Later a gradual shift toward beta-rhythms with a reduced mean amplitude of EEG biopotentials occurred. Heightened emotional stress in the first hours of flight and before reentry was reflected in decreased electrical resistance of the cortex. Functional stability of the higher involuntary nervous centers is indicated by the maintenance of normal daily variation of cortical resistance--higher at night, lower during the daytime--during the rest of the flights. EOG's (electrooculograms) were used as an index of the functional state of the vestibular apparatus. Asymmetries in oculomotor reaction, which could have indicated disturbances of the vestibular centers, were not observed in either cosmonaut. Vestibular tests not supplemented by EOG's also failed to yield any evidence of vestibular disturbance. Oculomotor activity was also used as an index of general and motor activity. Variations in oculomotor activity had a phase character. At the beginning of the flight Nikolayev, and to

Card 2/5



ACCESSION NR: AT4042642

a lesser degree Popovich, showed an increase of oculomotor activity up to 4 to 6 eye movements per second. Eye movements of an uncoordinated character, of both large and small amplitude, were recorded. On the 6th and 7th orbits eye movement fell off, and later EOG's show periodic increases and decreases in oculomotor activity. Toward the end of the flight a second stable increase in oculomotor activity occurred, but its level was lower than at the beginning of the flight. Cardiac activity was monitored by EKG's (using chest leads). Increased pulse rates (from 98 to 112 for Nikolayev, and from 94 to 136 for Popovich) occurred immediately before launch, with corresponding shortening of the PQ and QT intervals. EKG changes during the powered-flight phase were similar to those observed in ground experiments with centrifuging. The maximum pulse rate during the first minute of flight was 136 for Nikolayev and 132 for Popovich. Normalization of pulse rates to the rates observed 4 hr before launch took place on Nikolayev's 6th and 7th orbit and on Popovich's 3rd to 4th orbit. Normalization of pulse to initial rates took 5 to 10 min during tests. No IKG changes indicating disturbances of automatism, excitability, or conductivity were observed. In flight Popovich registered 3 separate extra

Card

3/5

ACCESSION NR: AT4042642

systoles; this had also occurred during training tests. The character of daily variation of cardiac activity remained unchanged. Pneumographic data revealed no respiratory irregularities. Some increase in respiration rate was noted during the powered-flight phase; this had also been observed during centrifuge tests. No pathological change in physiological functions of either cosmonaut was observed during flight. During the powered-flight phase, functional shifts similar to those observed during centrifuge tests occurred. Definite changes in the functional state of various physiological systems took place during the first hours of orbital flight, as indicated by the inhibition of pulse-rate normalization and the character of EEG and cortical resistance changes. Changes in the character of EEG's during prolonged (3 to 4 days) weightlessness indicate shifts in the interaction of excitation-inhibition processes in the higher levels of the CNS. However, the mental activity and neuro-regulatory functions of the cosmonauts remained at a high level.

ASSOCIATION: none

Card 4/5

ACCESSION NR: AT4042642

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 000

Card 5/5

ACCESSION NR: AT4042651

S/0000/63/000/000/0051/0054

AUTHOR: Bayevskiy, R. M.

TITLE: On the question of the Possibility of transmitting medical data using telemetric channels of limited capacity

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy konferentsii. Moscow, 1963, 51-54

TOPIC TAGS: biotelemetry, data coding, channel capacity electromyograph, electroencephalograph, statistical coding

ABSTRACT: Present methods of transmitting medical data by their nature include much redundant or already-known information, elimination of which would permit the use of channels with one-tenth or one-hundredth the capacity now required. For instance, the transmission of EKG curves requires about 400 binary bits per second; a 20-minute transmission thus requires about  $0.5 \times 10^6$  bits of information. Decoding of EKG traces yields about ten indices (PQ, QRS, QT, and so forth). If these are monitored directly and transmitted once a minute, a 20-

Card

1/3

ACCESSION NR: AT4042651

minute transmission will require 5000 bits, which amounts to a hundred-fold reduction in the channel capacity required. Still further economy can be attained by the use of arbitrary signals simply indicating that a given index has a normal or a pathological value. The feasibility of consecutive transmission of simultaneously measured indices is also discussed. A 4-channel electromyograph and a 4-channel electroencephalograph embodying these information coding principles have been built in model form. They are designed to share a single telemetering channel of limited capacity. Conventional transmission of four uncoded EMG's would require four channels each having a capacity of 2000 to 3000 bits per second; the new electromyograph generates 8 pulses per second and requires a channel capacity of 150 bits per second. Coded EEG's can be transmitted with 20 pulses per second, which reduces the required channel capacity by a factor of one hundred. The way is also opened to the creation of special codes for medical control during space flight. A counting-totaling device, which performs a simple count of pulse, respiration, and motor activity and records every 50th or 25th pulse, has been designed. A system for direct coding of medical data, including symptoms indicating deviations of physiological parameters from normal, has been incorporated into a diode matrix signaller. Use of an arbitrary code reduces the channel capacity

Card

2/3

ACCESSION NR: AT4042651

required, increases reliability and noise resistance, and improves the efficiency of medical control. This coding method is only a first step. More effective codes may be based on statistical principles, particularly probability and correlation. If the simpler symbols are assigned to the most probable signals, channel capacity can be further economized. The probability distribution of these codes in itself is of definite diagnostic interest. An extension of probability coding is coding with prediction. With this method, signals to correct preset values predicted ahead of time would be transmitted in place of the information itself. The mathematical basis for statistical coding of medical data does not yet exist, but the eventual introduction of computerized coding using such a system is a strong probability.

ASSOCIATION: none

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 3/3

AKULINICHEV, I.,<sup>1</sup> doktor med. nauk; BAYEVSKIY, R.,<sup>2</sup> kand. med. nauk

Automatic processing of medical information. Radio no.7:23-24  
Jl '63. (MIRA 16:7)

(Electronic data processing--Medicine)

L 1062-66 ENT(d)/FBD/ENT(1)/FS(y)-3/EEG(k)-2/EED-2 RD/GW

ACCESSION NR: AR5006997

S/0275/65/000/001/VO10/VO10  
621.38:629.196.4

21  
20B

SOURCE: Ref. zh. Elektronika i yeye primeneniye. Sv. t., Abs. 1 V59

AUTHOR: Akulnichyev, I. T.; Bayevskiy, R. M.; Denisov, V. G.; Yazdovskiy, V. I.

TITLE: Biotelemeter systems in astronautics

CITED SOURCE: Sb. Radiotelemetriya v fiziol. i med., Sverdlovsk, 1963, 10-13

TOPIC TAGS: biotelemeter 4

TRANSLATION: The biotelemeter monitoring of many-day astronatic<sup>u</sup> flights is based on a continuous presence of all sensors and electrodes on the astronaut during the flight and on an automatic control of the shipborne equipment. Eighteen parameters were investigated: electrocardiogram, pneumogram, electric myogram, body temperature, photocardiogram, air pressure, air humidity, air temperature, O<sub>2</sub> content, CO<sub>2</sub> content, etc. TV observation, radiocommunication, and cosmic-radiation monitoring were added to the above measurements. It is believed that the medical-monitoring biotelemeter systems will be developed on the basis of dynamic telemetry and automatic tracking of medical parameters produced by

Card 1/2



L 1062-66

ACCESSION NR: AR5006997

detachable sensors and electrodes and also on the basis of biological indication. Use of ingrown telemeter systems is planned. In the future, medical monitoring will be needed during the landing on the planets. Apparently, a "long-distance" dynamic telemetry consisting of a radio link, astronaut suit, ship will be used. The use of biotelemetry is expected in the systems of astronaut radio link intentional and spontaneous biological controls.

SUB CODE: AC, EC

ENCL: 00

Card 2/2 *DP*

S/216/63/000/001/001/004

A066/A126

AUTHORS: Parin, V.V., Bayevskiy, R.M.

TITLE: Problems of cybernetics and space medicine

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, <sup>28</sup>no. 1,  
1963, 9 - 14

TEXT: The authors discuss a few problems of cybernetics in relation to space medicine. One of the most important tasks in this field, the radiotelemetric transmission of biological data from space vehicles to Earth, could be solved only by using the latest achievements in information theory. Devices for the automatic processing of medico-biological information on board of a spaceship are in the developmental stage. Such devices will enable prognosis of the biological conditions in the cabin and of the astronaut's state of health. In analogy to electronic diagnostic machines, mathematical treatment of biological phenomena, data storage, and determination of limiting values are of great importance in space medicine. The information is not recorded by magnetic tape or punched cards but processed directly by computers and with the aid of algorithms.

Card 1/2

Problems of cybernetics and space medicine

S/216/63/000/001/001/004  
A066/A126

The theory of automatic control is used for constructing models of physiological reactions, for developing closed ecologic systems, and for solving problems of piloting space vehicles. The design and construction of improved flight control mechanisms calls for a detailed study of the effect of conditions in outer space on the efficiency of the nervous system. Automatic treatment of information sent by biological indicators, including plants, microbes and animals, will secure signalization of conditions menacing the life of man. Such indicators may also be used to explore the universe by unmanned rockets. Great achievements in space research may thus be expected from an extensive use of cybernetics in space medicine and space biology.

ASSOCIATION: Institut normal'noy i patologicheskoy fiziologii Akademii meditsinskikh nauk SSSR (Institute of Normal and Pathological Physiology of the Academy of Medical Sciences USSR)

SUBMITTED: September 18, 1962

Card 2/2

BAYEVSKIY, R.M.; ZIL'BERTAL', Ye.A.; KRUZENSHTERN, V.M.; FREYDEL', V.R.

Use of automatic logical devices for medical control. Biul.  
eksp. biol. i med. 56 no.8:116-120 Ag '63. (MIRA 17:7)

1. Predstavleno deystvitel'nyy chlenom AMN SSSR V.V. Parinyu.

VOLYNKIN, Yu.M.; YAZDOVSKIY, V.I., prof.; GENIN, A.M.; GAZENKO, O.G.; GUROVSKIY, N.N.; YEMEL'YANOV, M.D.; MIKHAYLOVSKIY, G.P.; GORBOV, F.D.; SERYAPIN, A.D.; BAYEVSKIY, R.M.; ALTUKHOV, G.V.; KOPANEV, V.I.; KAS'YAN, I.I.; MYASNIKOV, V.I.; THERENT'YEV, V.G.; BRYANOV, I.I.; FEDOROV, Ye.A.; FOMIN, V.S.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; KOTOVSKAYA, A.R.; KAKURIN, L.I.; TSRLIKIN, Ye.Ye.; USHAKOV, A.S.; VOLOVICH, V.G.; SAKSONOV, P.P.; YEGOROV, A.D.; NEUMYVAKIN, I.P.; TALAPIN, V.F.; SISAKYAN, N.M., akademik, red.; KOLPAKOVA, Ye.A., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[First group space flight: scientific results of medical and biological studies carried out during the group orbital flight of manned satellites "Vostok-3" and "Vostok-4"]  
 Pervyi gruppovoi kosmicheskii polet; nauchnye rezul'taty mediko-biologicheskikh issledovaniy, provedennykh vo vremia gruppovogo orbital'nogo poleta korablei-sputnikov "Vostok-3" i "Vostok-4." Moskva, Izd-vo "Nauka," 1964. 153 p.  
 (MIRA 17:3)

AKULINICHEV, Ivan Timofeyevich; BAYEVSKIY, Roman Markovich;  
ZAZYKIN, Konstantin Pavlovich; FREYDEL', Vladimir  
Rafailovich; KLEVTSOV, M.I., red.; LARIONOV, G.Ye., tekhn.red.

[Radio electronics in space medicine] Radioelektronika v kos-  
micheskoi meditsine. Moskva, Izd-vo "Energia," 1964. 43 p.  
(Massovaya radiobiblioteka, no.505). (MIRA 17:4)

PARIN, V. V.; ZAKRZHEVSKIY, Ye. B.; BAYEVSKIY, R. M.

"Clinical aspects of interplanetary flights."

paper presented at the 13th European Cong on Aviation & Space Medicine, Dublin,  
14-18 Sep 64.





L 59502-65

ACCESSION NO: A73013040

**ABSTRACT:** The digital computer technique of monitoring the physiological state of spaceship crews and life support systems permits complete simulation of medical logic in cases which can be described by a definite algorithm. The general principles of "machine diagnosis" pertain equally to land and spaceborne diagnostic equipment and medical monitoring systems for crew members in flight. The only basic difference is that the spaceship monitoring system is made for the direct input of data from sensors positioned on the human body. Table 1 lists methods currently in use for medical monitoring tasks. Typically, a special complex of sensors and amplifiers is used to measure the necessary physiological parameters, which are fed directly to the computer. A basic problem is the reliability of measurements during long flights, with external interference and movement by the subjects being monitored. With the proper selection of the biopotential tapping electrodes and of the electrodes, and an interference-free measuring system, the electrocardiogram provides a reliable pulse rate criterion for long periods of time. Fig. 1 shows a schematic of a pulse measuring system. A measuring skin electrode structure is described in the thesis.

L 59602-65

ACCESSION NR: AT5013040

Table 1. Methods of medical monitoring during space flight

Method	Parameter	Range of measurement	Required accuracy
Electrocardiography	Pulse rate	30—300/min	$\pm 1$ /min
Pneumography	Respiration rate	6—120/min	$\pm 1$ /min
Cutaneous thermometry	Skin temperature	20—40C	$\pm 0.1C$
Motor activity	Muscular movement	0—7 rel. units	$\pm 1$
Cutaneo-galvanometry	Cutaneo-galvanic reaction	0—100 mv	$\pm 1$ mv

( Table 1 continued on card 4/9)

Card 3/9

L 596 7-65

ACCESSION NR: AT5013040

(Continued from card 3/9)

Pericardiac ballisto- cardiography	Mechanical work of the heart	10—20 mm/sec <sup>2</sup>	<u>+1</u> mm/sec <sup>2</sup>
Recording of conditioned- motor reactions	Latent period of conditioned reac- tions	0.1—2 sec	<u>+0.01</u> sec

motor reactions are measured by automatic switching of light and sound stimuli to which the person being tested must react. Fig. 3 shows the circuit used; it includes two electronic time relays and an audio-frequency

Card 4/9

I 59602-65  
ACCESSION NR: AT5013040

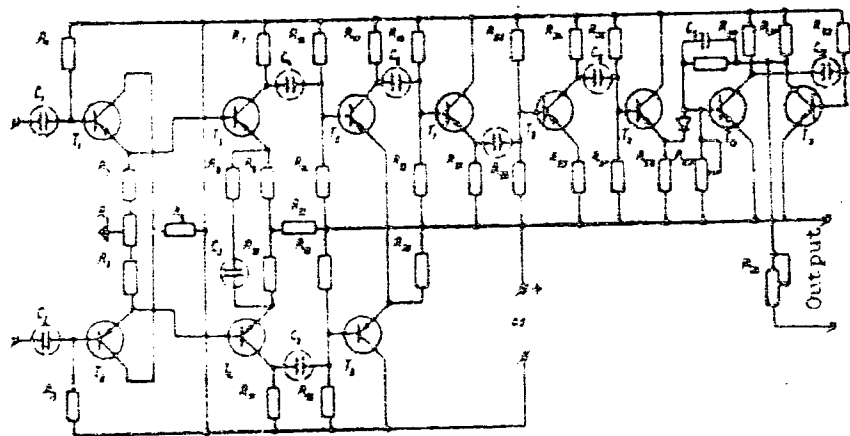


Fig. 1. Pulse channel

Card 5/9

L 59602-65

ACCESSION NR: AF5013040

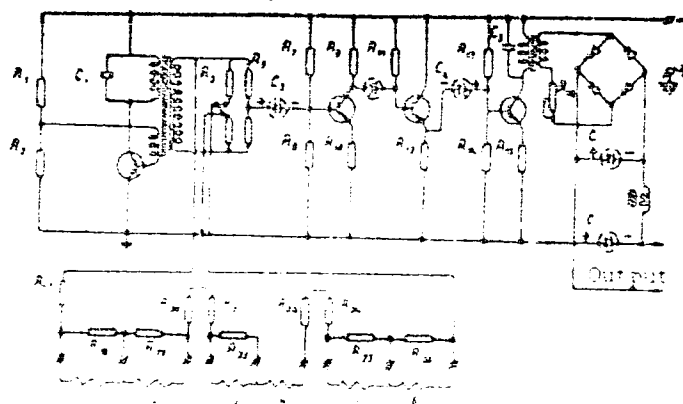


Fig. 1. Circuit for measuring skin temperature

Cord 6/9

1 59502-65

REF ID: A5013040

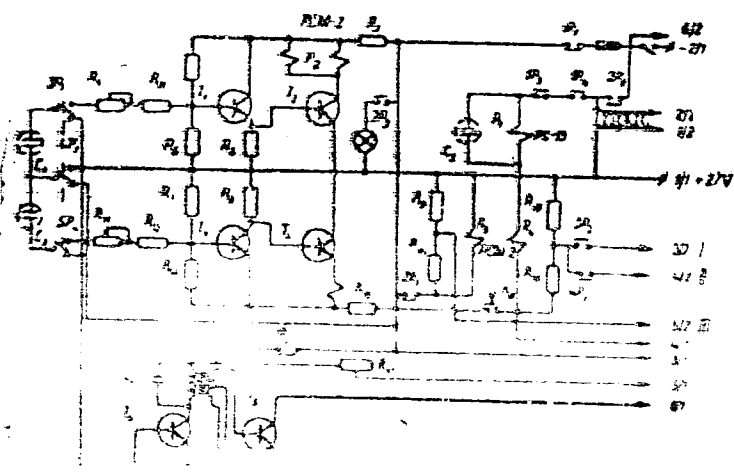


Fig. 3. Circuit for measuring conditioned motor reactions

Card B/9

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ACCESSION NR: AT5013040

0

flight, e. g., from 10—20 sec during the powered portion, when g-forces, vibrations, and noise attain maximum intensity, up to 5—10 min during the orbital portion. The computation rate of the arithmetic unit for fixed-point calculations is several thousand operations per sec. The permanent storage carries the program and the numerical constants. The microprogramming principle is used in the control system. The output unit is equipped with an alphanumeric printer and warning indicators. The computer provides for a quick rearrangement or self-correction of the program during the operation. Orig. art. has: 5 figures, 3 tables.

ASSOCIATION: none

SUBMITTED: 17Nov64

ENCL: 00

SUB CODE: DP,PH

NR REF SOV: 000

OTHER: 000

FSB v. 1, no.8

Card

9/9

L 63245-65 EEC-4/EEC-2/ENG(c)/ENG(j)/ENG(r)/EEC(k)-2/ENG(v)/EWT(d)/EWT(1)/FS(v)-3/

ACCESSION NR. AT5013041

UR/0000/647002/000/0100/0105

AUTHOR: Bayevskiy, R. M. (Moscow), Voskresenskiy, A. D. (Moscow); 75  
Gazenko, O. G. (Moscow); Yegorov, A. D. (Moscow), Chekhonadskiy, N. A. 2-1  
(Moscow); Yazdovskiy, V. I. (Moscow)

TITLE: Measuring information systems in cosmic biology AM

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy. 4th. Novosibirsk, 1962. Avtomatichesk y kontrol i metody elektricheskikh izmereniy; trudy konferentsiy, t. 2: Teoriya izmeritel'nykh informatsionnykh sistem. Sistemy avtomaticheskogo kontrolya. Elektricheskoye izmereniya neelektricheskikh velichin (Automatic control and electrical measuring techniques; transactions of the conference, v. 2: Theory of information measurement systems. Automatic control systems. Electrical measurements of nonelectrical quantities). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1964, 100-105

**TOPIC TAGS:** cosmic biology, information system

**ABSTRACT:** A general state-of-the-art discussion and a review based on six 1956-61 Soviet and ten 1959-62 American sources are presented. Two types --

Card 1/2



L 63245-65

ACCESSION NR: AT5013041

research and monitoring — of measuring information systems have been used in cosmic biology. Block diagrams of telemetering biological data under laboratory and actual flight conditions are shown. Automatic data-processing systems are used for quick diagnosing of man's condition and situations. The effect of weightlessness on the autocorrelation function of G. S. Titov's pulse frequency is shown. Ways for using mathematical simulation of bio processes are figured out. The problems of reliability of equipment are discussed, as well as the "small telemetry" (between the astronaut and his ship-borne equipment). Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 17Nov64

NO REF SOV: 006

ENCL: 00

OTHER: 010

SUB CODE: LS, SV

Vostok 2

KC  
Card 2/2

L 63246-65 EEC-1/EEC-2/PEO-2/ENG(c)/ENG(j)/ENG(r)/EEC(k)-2/ENG(v)/EAT(d)/EAT(l)/  
EAT(m)/EAT(n)/EAT(o)-2/SS-2 Pa-5/Pa-1/Pa-4/Pa-6 Pa-1/Pa-2/Pa-3/Pa-4/Pa-5/Pa-6/Pa-7/Pa-8/Pa-9/Pa-10/Pa-11/Pa-12/Pa-13/Pa-14/Pa-15/Pa-16/Pa-17/Pa-18/Pa-19/Pa-20/Pa-21/Pa-22/Pa-23/Pa-24/Pa-25/Pa-26/Pa-27/Pa-28/Pa-29/Pa-30/Pa-31/Pa-32/Pa-33/Pa-34/Pa-35/Pa-36/Pa-37/Pa-38/Pa-39/Pa-40/Pa-41/Pa-42/Pa-43/Pa-44/Pa-45/Pa-46/Pa-47/Pa-48/Pa-49/Pa-50/Pa-51/Pa-52/Pa-53/Pa-54/Pa-55/Pa-56/Pa-57/Pa-58/Pa-59/Pa-60/Pa-61/Pa-62/Pa-63/Pa-64/Pa-65/Pa-66/Pa-67/Pa-68/Pa-69/Pa-70/Pa-71/Pa-72/Pa-73/Pa-74/Pa-75/Pa-76/Pa-77/Pa-78/Pa-79/Pa-80/Pa-81/Pa-82/Pa-83/Pa-84/Pa-85/Pa-86/Pa-87/Pa-88/Pa-89/Pa-90/Pa-91/Pa-92/Pa-93/Pa-94/Pa-95/Pa-96/Pa-97/Pa-98/Pa-99/Pa-100/Pa-101/Pa-102/Pa-103/Pa-104/Pa-105/Pa-106/Pa-107/Pa-108/Pa-109/Pa-110/Pa-111/Pa-112/Pa-113/Pa-114/Pa-115/Pa-116/Pa-117/Pa-118/Pa-119/Pa-120/Pa-121/Pa-122/Pa-123/Pa-124/Pa-125/Pa-126/Pa-127/Pa-128/Pa-129/Pa-130/Pa-131/Pa-132/Pa-133/Pa-134/Pa-135/Pa-136/Pa-137/Pa-138/Pa-139/Pa-140/Pa-141/Pa-142/Pa-143/Pa-144/Pa-145/Pa-146/Pa-147/Pa-148/Pa-149/Pa-150/Pa-151/Pa-152/Pa-153/Pa-154/Pa-155/Pa-156/Pa-157/Pa-158/Pa-159/Pa-160/Pa-161/Pa-162/Pa-163/Pa-164/Pa-165/Pa-166/Pa-167/Pa-168/Pa-169/Pa-170/Pa-171/Pa-172/Pa-173/Pa-174/Pa-175/Pa-176/Pa-177/Pa-178/Pa-179/Pa-180/Pa-181/Pa-182/Pa-183/Pa-184/Pa-185/Pa-186/Pa-187/Pa-188/Pa-189/Pa-190/Pa-191/Pa-192/Pa-193/Pa-194/Pa-195/Pa-196/Pa-197/Pa-198/Pa-199/Pa-200/Pa-201/Pa-202/Pa-203/Pa-204/Pa-205/Pa-206/Pa-207/Pa-208/Pa-209/Pa-210/Pa-211/Pa-212/Pa-213/Pa-214/Pa-215/Pa-216/Pa-217/Pa-218/Pa-219/Pa-220/Pa-221/Pa-222/Pa-223/Pa-224/Pa-225/Pa-226/Pa-227/Pa-228/Pa-229/Pa-230/Pa-231/Pa-232/Pa-233/Pa-234/Pa-235/Pa-236/Pa-237/Pa-238/Pa-239/Pa-240/Pa-241/Pa-242/Pa-243/Pa-244/Pa-245/Pa-246/Pa-247/Pa-248/Pa-249/Pa-250/Pa-251/Pa-252/Pa-253/Pa-254/Pa-255/Pa-256/Pa-257/Pa-258/Pa-259/Pa-260/Pa-261/Pa-262/Pa-263/Pa-264/Pa-265/Pa-266/Pa-267/Pa-268/Pa-269/Pa-270/Pa-271/Pa-272/Pa-273/Pa-274/Pa-275/Pa-276/Pa-277/Pa-278/Pa-279/Pa-280/Pa-281/Pa-282/Pa-283/Pa-284/Pa-285/Pa-286/Pa-287/Pa-288/Pa-289/Pa-290/Pa-291/Pa-292/Pa-293/Pa-294/Pa-295/Pa-296/Pa-297/Pa-298/Pa-299/Pa-300/Pa-301/Pa-302/Pa-303/Pa-304/Pa-305/Pa-306/Pa-307/Pa-308/Pa-309/Pa-310/Pa-311/Pa-312/Pa-313/Pa-314/Pa-315/Pa-316/Pa-317/Pa-318/Pa-319/Pa-320/Pa-321/Pa-322/Pa-323/Pa-324/Pa-325/Pa-326/Pa-327/Pa-328/Pa-329/Pa-330/Pa-331/Pa-332/Pa-333/Pa-334/Pa-335/Pa-336/Pa-337/Pa-338/Pa-339/Pa-340/Pa-341/Pa-342/Pa-343/Pa-344/Pa-345/Pa-346/Pa-347/Pa-348/Pa-349/Pa-350/Pa-351/Pa-352/Pa-353/Pa-354/Pa-355/Pa-356/Pa-357/Pa-358/Pa-359/Pa-360/Pa-361/Pa-362/Pa-363/Pa-364/Pa-365/Pa-366/Pa-367/Pa-368/Pa-369/Pa-370/Pa-371/Pa-372/Pa-373/Pa-374/Pa-375/Pa-376/Pa-377/Pa-378/Pa-379/Pa-380/Pa-381/Pa-382/Pa-383/Pa-384/Pa-385/Pa-386/Pa-387/Pa-388/Pa-389/Pa-390/Pa-391/Pa-392/Pa-393/Pa-394/Pa-395/Pa-396/Pa-397/Pa-398/Pa-399/Pa-400/Pa-401/Pa-402/Pa-403/Pa-404/Pa-405/Pa-406/Pa-407/Pa-408/Pa-409/Pa-410/Pa-411/Pa-412/Pa-413/Pa-414/Pa-415/Pa-416/Pa-417/Pa-418/Pa-419/Pa-420/Pa-421/Pa-422/Pa-423/Pa-424/Pa-425/Pa-426/Pa-427/Pa-428/Pa-429/Pa-430/Pa-431/Pa-432/Pa-433/Pa-434/Pa-435/Pa-436/Pa-437/Pa-438/Pa-439/Pa-440/Pa-441/Pa-442/Pa-443/Pa-444/Pa-445/Pa-446/Pa-447/Pa-448/Pa-449/Pa-450/Pa-451/Pa-452/Pa-453/Pa-454/Pa-455/Pa-456/Pa-457/Pa-458/Pa-459/Pa-460/Pa-461/Pa-462/Pa-463/Pa-464/Pa-465/Pa-466/Pa-467/Pa-468/Pa-469/Pa-470/Pa-471/Pa-472/Pa-473/Pa-474/Pa-475/Pa-476/Pa-477/Pa-478/Pa-479/Pa-480/Pa-481/Pa-482/Pa-483/Pa-484/Pa-485/Pa-486/Pa-487/Pa-488/Pa-489/Pa-490/Pa-491/Pa-492/Pa-493/Pa-494/Pa-495/Pa-496/Pa-497/Pa-498/Pa-499/Pa-500/Pa-501/Pa-502/Pa-503/Pa-504/Pa-505/Pa-506/Pa-507/Pa-508/Pa-509/Pa-510/Pa-511/Pa-512/Pa-513/Pa-514/Pa-515/Pa-516/Pa-517/Pa-518/Pa-519/Pa-520/Pa-521/Pa-522/Pa-523/Pa-524/Pa-525/Pa-526/Pa-527/Pa-528/Pa-529/Pa-530/Pa-531/Pa-532/Pa-533/Pa-534/Pa-535/Pa-536/Pa-537/Pa-538/Pa-539/Pa-540/Pa-541/Pa-542/Pa-543/Pa-544/Pa-545/Pa-546/Pa-547/Pa-548/Pa-549/Pa-550/Pa-551/Pa-552/Pa-553/Pa-554/Pa-555/Pa-556/Pa-557/Pa-558/Pa-559/Pa-560/Pa-561/Pa-562/Pa-563/Pa-564/Pa-565/Pa-566/Pa-567/Pa-568/Pa-569/Pa-570/Pa-571/Pa-572/Pa-573/Pa-574/Pa-575/Pa-576/Pa-577/Pa-578/Pa-579/Pa-580/Pa-581/Pa-582/Pa-583/Pa-584/Pa-585/Pa-586/Pa-587/Pa-588/Pa-589/Pa-590/Pa-591/Pa-592/Pa-593/Pa-594/Pa-595/Pa-596/Pa-597/Pa-598/Pa-599/Pa-600/Pa-601/Pa-602/Pa-603/Pa-604/Pa-605/Pa-606/Pa-607/Pa-608/Pa-609/Pa-610/Pa-611/Pa-612/Pa-613/Pa-614/Pa-615/Pa-616/Pa-617/Pa-618/Pa-619/Pa-620/Pa-621/Pa-622/Pa-623/Pa-624/Pa-625/Pa-626/Pa-627/Pa-628/Pa-629/Pa-630/Pa-631/Pa-632/Pa-633/Pa-634/Pa-635/Pa-636/Pa-637/Pa-638/Pa-639/Pa-640/Pa-641/Pa-642/Pa-643/Pa-644/Pa-645/Pa-646/Pa-647/Pa-648/Pa-649/Pa-650/Pa-651/Pa-652/Pa-653/Pa-654/Pa-655/Pa-656/Pa-657/Pa-658/Pa-659/Pa-660/Pa-661/Pa-662/Pa-663/Pa-664/Pa-665/Pa-666/Pa-667/Pa-668/Pa-669/Pa-670/Pa-671/Pa-672/Pa-673/Pa-674/Pa-675/Pa-676/Pa-677/Pa-678/Pa-679/Pa-680/Pa-681/Pa-682/Pa-683/Pa-684/Pa-685/Pa-686/Pa

AUTHOR: Akulimichev, I. T. (Moscow), Bayevskiy, R. M. (Moscow).  
Gazenko, O. G. (Moscow); Zazykin, K. P. (Moscow); Shadrinsev, I. S. (Moscow)

TITLE: Sensors for physiological research under space-flight conditions

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy. 4th. Novosibirsk, 1962. Avtomaticheskyy kontrol' i metody elektricheskikh izmereniy, trudy konferentsiy, t. 2. Teoriya izmeritel'nykh informatsionnykh sistem. Sistemy avtomaticheskogo kontrolya. Elektricheskiye izmereniya neelektricheskikh velichin (Automatic control and electrical measuring techniques, transactions of the conference, v. 2. Theory of information measurement systems. Automatic control systems. Electrical measurements of nonelectrical quantities). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1964, 106-111

**TOPIC TAGS:** sensor, biosensor, biotelemetry 46

**ABSTRACT:** A general state-of-the-art discussion and a review based on four 1958-63 Soviet and eight 1952-62 American sources are presented. A block

Card 1/2

L 63246-65

ACCESSION NR: AT5013042

diagram of physiological measurements in space flight is explained. Methods of physiological research used in Soviet space flights (electrocardiography, arterial oscillography, pneumography, actography, etc.) are tabulated and their application to the Soviet astronauts is explained. The sensors of various physiological functions which have been used in cosmic flights are mentioned and their characteristics tabulated. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 17Nov64

ENCL: 00

SUB CODE: LS, SV

NO REF SOV: 004

OTHER: 008

Card <sup>14</sup>2/2

ACCESSION NR: AP4012881

S/0248/64/000/002/0060/0066

AUTHOR: Akulinichev, I. T. (Moscow); Bayevskiy, R. M. (Moscow)

TITLE: Use of radiotelemetry in space medicine

SOURCE: AMN SSSR. Vestnik, no. 2, 1964, 60-66

TOPIC TAGS: radiotelemetry, cosmonaut, Nikolayev, orbital flight, electrocardiography, Vostok 3, Vostok 4

ABSTRACT: A sketchy review of the latest experiments in space medicine is given in the light of modern space communication techniques. Future conceivable paths of the development and perfection of these tests are discussed. Those tests already conducted, particularly Nikolayev's orbital flight, are described in detail. The following Soviet studies and achievements are mentioned: electrodes which can remain fixed for 3-5 days on the spaceman's body without impeding his activity or irritating him, thus providing a quality EKG record; a simultaneous monitoring of two parameters over a single telemetric channel; the development, adjustment, and refinement of compact, multichannel, highly sensitive and dependable telemetric bio- and physiological testing equipment. The Vostok-3 and -4 cockpit physiological equipment is specified in minute detail; samples of Nikolayev's test data are

Card: 1/2